



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/617,371 | 07/10/2003 | Motohide Yamazaki | 850136.402D1 | 1475 |

500 7590 11/01/2007
SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVE
SUITE 5400
SEATTLE, WA 98104

| EXAMINER |
|----------|
|----------|

MACAULEY, SHERIDAN R

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1651

| MAIL DATE | DELIVERY MODE |
|-----------|---------------|
|-----------|---------------|

11/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/617,371

Applicant(s)

YAMAZAKI ET AL.

Examiner

Sheridan R. MacAuley

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-13 and 15-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-13 and 15-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/19/2007.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Art Unit: 1651

DETAILED ACTION

A response and amendment was entered and received on August 13, 2007. All arguments were fully considered.

Claims 11-13 and 15-24 are pending.

Election/Restrictions

1. Applicant has overcome the restriction set forth in the office action mailed on July 18, 2007 by amendment. Withdrawn claims 11-13 and 15-24 have been rejoined to the originally presented invention.
2. Claims 11-13 and 15-24 are examined on the merits in this office action.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Art Unit: 1651

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 11-13 and 15-24 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No.

6,605,461. The claims of the instant application recite a fermentation broth comprising slime-forming *Sphingomonas* bacterial cells and an exopolysaccharide in slime form that is obtained by culturing *Sphingomonas* bacteria, specifically those selected from the group consisting of ATCC PTA-3487, ATCC PTA-3486, ATCC PTA-3485, ATCC PTA-3488 and mixtures thereof, and specifically wherein the bacteria are grown in a submerged, aerated liquid culture and wherein the dissolved oxygen exceeds 5% of saturation of water after 24 hours of culturing, for a time and temperature, specifically for about 48 to about 96 hours at a temperature of 25 degrees C to about 35 degrees C, effective for providing a broth from which an exopolysaccharide, specifically one of the claimed exopolysaccharides, can be recovered with alcohol precipitation, specifically using from about 1 to 1.5 volumes of alcohol, at a temperature of about 25 degrees C to 50 degrees C, wherein the process yields at least about 10 grams of exopolysaccharide per liter of broth.

5. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent are drawn to an isolated *Sphingomonas* bacterium selected from the group consisting of selected from the group consisting of ATCC PTA-3487, ATCC PTA-3486, ATCC PTA-3485, ATCC PTA-3488, specifically wherein the bacterium produces an exopolysaccharide in slime form,

Art Unit: 1651

wherein the exopolysaccharide is selected from the group consisting of the claimed exopolysaccharides, when subjected to submerged fermentation. Although the claims of the instant application recite a broth and the claims of the patent recite a bacterium, the instantly claimed broth is the direct result of culturing the bacterium by submerged fermentation. One of ordinary skill in the art would have been motivated to produce the instantly claimed broth using the patented strains because the claims of the patent recite that the strains may be used for the production of the claimed exopolysaccharides by submerged fermentation. One would further have been motivated to use the claimed conditions to produce the instantly claimed fermentation broth because the culturing conditions that can be used to arrive at the claimed fermentation broth are recited in the specification of the instant application. Also, the instant claims recite a product that is defined in terms of the process by which it is made (i.e. the specific culturing conditions) and in terms of a characteristic (i.e. that the process yields a specific amount of sphingan exopolysaccharide). There is no evidence that there is an unobvious difference between the strain that has been cultured by submerged fermentation, as described in the claims of the patent, and the broth that is claimed in the instant application. One of ordinary skill in the art would have had a reasonable expectation of success in producing the instantly claimed fermentation broth using the bacteria claimed in the patent because the patent describes the production of the claimed fermentation broth using the claimed bacterial strains. Therefore, the claims of the instant application are rendered obvious in view of the claims of the copending application.

Art Unit: 1651

6. It is noted that the claims were not rejected on the grounds of double patenting in the office action mailed on March 22, 2006 because a requirement for restriction was made in an office action mailed on September 12, 2002 during prosecution the parent application, US Application 09/905829 (now US Patent 6,605,461). Three separate inventions were set forth in the application: (I) a method of producing exopolysaccharide; (II) an exopolysaccharide; and (III) a bacterium. In the parent application, applicant elected to prosecute the invention of group III, i.e. the bacterial strains which are claimed in US Patent 6,605,461. In the instant application, all claims were initially directed to the invention of group II, i.e. the exopolysaccharide. Since the claims have been amended to recite a broth comprising the patented bacteria, there is no longer an unobvious difference between the two inventions. Therefore, the claims of the instant application are subject to a double patenting rejection.

Claim Rejections - 35 USC § 102/103

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1651

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 15, 17, 18, 20, 23 and 24 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Pollock (US Pat. 5,854,034). Claims 15, 17 and 18 recite a fermentation broth comprising slime-forming *Sphingomonas* bacterial cells and an exopolysaccharide in a slime form, specifically the exopolysaccharides recited in claims 17 and 18, wherein the exopolysaccharide can be recovered from said fermentation broth by alcohol precipitation at a temperature of about 25 degrees C to about 50 degrees C to yield at

Art Unit: 1651

least about 10 grams of exopolysaccharide per liter of broth. Claims 20, 23 and 24 recite a fermentation broth comprising slime-forming *Sphingomonas* bacteria, wherein the bacteria are grown in a submerged, aerated liquid culture, and wherein the concentration of dissolved oxygen exceeds about 5% of saturation of water after 24 hours of culturing, specifically wherein the exopolysaccharide is one which is recited in claims 23 and 24.

12. Pollock discloses a fermentation broth comprising *Sphingomonas* and the claimed polysaccharide products. The polysaccharides of Pollock appear to be identical to the presently claimed products, based on the fact that the prior art products have chemical structures identical to the chemical structures of the claimed polysaccharides. See Fig. 6, disclosing gellan gum, welan gum, rhamosan gum, and NW-11, as recited in the claims, and col. 14, lines 26-51, disclosing the fermentation broth and the recovery of exopolysaccharide by alcohol precipitation. Consequently, the claimed products appear to be anticipated by the cited references.

13. However, even if the reference products and the claimed products are not one and the same and there is, in fact, no anticipation, the reference products would, nevertheless, have rendered the claimed product obvious to one of ordinary skill in the art at the time the claimed invention was made in view of the fact that one of ordinary skill would have reasonably expected nominal differences in the structures of polysaccharides produced by different fermentation batches, depending on the conditions used to prepare the polysaccharides. Further, although Pollock does not teach the specific conditions under which the exopolysaccharides are precipitated, one

Art Unit: 1651

of ordinary skill in the art could have arrived at the claimed conditions by routine experimentation. One of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed fermentation broth because Pollock teaches methods by which to culture *Sphingomonas* bacteria to produce the claimed exopolysaccharides.

14. Thus the claimed invention as a whole was clearly *prima facie* obvious especially in the absence of sufficient, clear, and convincing evidence to the contrary.

Note that MPEP § 2113 states that:

... [w]hen the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent and Trademark Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith. *In re Brown*, 59 CCPA 1063, 173 USPQ 685 (1972).

MPEP § 2113 also clearly states that

The Patent Office bears a lesser burden of proof in making out a case of *prima facie* obviousness for product-by-process claims because of their peculiar nature than when a product is claimed in the conventional fashion. *In re Fessmann*, 180 USPQ 324 (CCPA 1974)."

Thus, it is clear that the alternative-type rejection set forth herein is explicitly authorized by the MPEP.

Response to Arguments

15. Applicant's arguments filed August 13, 2007 have been fully considered but, regarding the rejection under 35 USC 102/103 in view of Pollock (US Pat. 5,854,034),

Art Unit: 1651

they are not persuasive. Applicant argues that the reference does not teach every claimed element of the instantly claimed invention, as required by 35 USC 102, and that a *prima facie* case of obviousness was not established, as required by 35 USC 103.

Applicant argues that the claimed fermentation broth differs from that taught by Pollock because the reference does not teach the production of slime-forming (i.e. unattached) polysaccharides, which can be recovered by alcohol precipitation of a fermentation broth.

16. In response to applicant's argument that Pollock does not teach or render obvious every element of the claimed invention, it is noted that Pollock teaches a fermentation broth comprising slime-forming *Sphingomonas* bacterial cells and an exopolysaccharide in slime form, wherein the exopolysaccharide can be recovered from the fermentation broth by alcohol precipitation (col. 14, lines 26-51). Although Pollock does not specifically teach the claimed characteristics, e.g. the conditions under which the exopolysaccharide can be recovered and the yield which may be recovered, the percentage of exopolysaccharide in the broth, and the viscosity of the broth, Pollock teaches the claimed exopolysaccharide which is produced by the claimed bacterial culture. Thus, the exopolysaccharide produced by Pollock is either identical to the claimed exopolysaccharide, or could be obtainable by one of ordinary skill in the art through routine experimentation, especially in the absence of evidence to the contrary. Applicant further argues that Pollock does not teach a slime-forming exopolysaccharide, as evidenced by the inability to precipitate the exopolysaccharide using alcohol. However, Pollock teaches the precipitation of the sphingan exopolysaccharide by

Art Unit: 1651

alcohol precipitation; thus, the exopolysaccharides of Pollock appear to be in slime-form. Therefore, Pollock either anticipates the claimed invention, or in the alternate, the claimed invention is rendered obvious in view of Pollock.

17. Therefore, applicant's arguments have been fully considered, but have not been found to be persuasive.

Conclusion

18. No claims are allowed.

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1651

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan R. MacAuley whose telephone number is (571) 270-3056. The examiner can normally be reached on Mon-Thurs, 7:30AM-5:00PM EST, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SRM
/Ruth A Davis/
Primary Examiner, AU 1651